

ABSTRACT OF THE DISCLOSURE

A method comprising forming a sacrificial layer over less than the entire portion of a contact area on a substrate, the sacrificial layer having a thickness defining an edge over the contact area, forming a spacer layer over the spacer, the spacer layer conforming to the shape of the first sacrificial layer such that the spacer layer comprises an edge portion over the contact area adjacent the first sacrificial layer edge, removing the sacrificial layer, while retaining the edge portion of the spacer layer over the contact area, forming a dielectric layer over the contact area, removing the edge portion, and forming a programmable material to the contact area formerly occupied by the edge portion. An apparatus comprising a volume of programmable material, a conductor, and an electrode disposed between the volume of programmable material and the conductor, the electrode having a contact area at one end coupled to the volume of programmable material, wherein the contact area is less than the surface area at the one end.